

# Validation of some *Astragalus* L. (Fabaceae) taxa in the flora of Middle Asia

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**Abstract:** Validation of some published sections of genus *Astragalus* L. is given. A new *Astragalus* species found in the Kysylkum desert (Uzbekistan) after typification in Komorov's Institute (LE) is described.

**Zusammenfassung:** Einige publizierte Sektionen der Gattung *Astragalus* L. wurden validiert. Eine neue *Astragalus*-Art aus der Kysylkum Wüste (Usbekistan) nach Typifizierung im Komorov's Institute (LE) wird beschrieben.

**Keywords:** Taxonomy, *Astragalus*, Uzbekistan.

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## INTRODUCTION

One of the first monographer of genus *Astragalus* was A. BUNGE, who published the first revision in 1868. The next one, who was attracted to the revision for the tremendous area of Flora Iranica was D. Podlech. He performed excellent typification in the largest herbaria of the world. Finally, PODLECH (2013) published a list of the *Astragalus* species of the Old World. One of the greatest specialists in *Astragalus* taxonomy and nomenclature also was the President of Russian Botanical Society Prof. Dr. Rudolph KAMELIN (recently joined to majority) and this paper is dedicated to his memory. He made one of the latest revisions of the genus in the “Conspectus Flora Asiae Mediae” (1981) and incorrectly suggested a dozen new sections ad subsections. The type of *A. centralis* E. SHELD. was found in LE and a new species has been chosen for the mountains in eastern Kysylkum.

## RESULTS AND DISCUSSION

Unfortunately, only section Gontscharoviella was correctly described by R. KAMELIN (1974). Afterwards, he made his excellent revision of the genus in volume 6 of *Conspectus Flora Asiae Mediae* (1981) where 592 species were registered for this region. Recently, the last volume 11 was published (KHASSANOV 2015) where the amount of *Astragalus* species increased for 57 additional taxa.

**Sect. Holosericea KAMELIN, Opred. Rast. Sred. Azii 6: 120 (1981).**

Type: *A. eupeplus* BARNEBY, in Feddes Repert. 82/9: 579 (1971).  
= *A. holosericeus* POPOV in Fl. Tadzhik. 5 (1937) 662, non M.E.



**Fig. 1:** Type specimen of *Astragalus centralis* E.SHELD.

JONES, Proc. Calif. Acad. Sci. ser. 2, 5: 638 (1898). Foliola 9-15 juga, inflorescentia folia magnifico longiora, setis densi ovoidei, flores et fructus pilosus. This monotypic section geographically belonging to Western Pamir was named by R. KAMELIN (1981) to the species described by M. POPOV (1937).

Sect. *Paraphaca* KAMELIN, Opred. Rast. Sred. Azii 6: 97 (1981).

Type: *A. leptostahys* PALL., Atrag.: 50 (1800) (pro max. parte, quod descrip. et specimen ex Altai). Caules recti, fructus glabris, triangularis.

Sect. *Mucidifolia* KAMELIN, Opred. Rast. Sred. Azii 6: 130 (1981).

Type: *A. mucidus* Bunge in Boiss. Fl. Or. 2: 279 (1872). Folia dense albo-pilosa.

Sect. *Paraxiphidium* KAMELIN, Opred. Rast. Sred. Azii 6: 185 (1981).

Type: *A. cornutus* PALL., Reise 1, Anhang.: 499 (1771). Fructus latus, calicem discerpens.

Sect. *Scabriseta* KAMELIN, Opred. Rast. Sred. Azii 6: 220 (1981).

Type: *A. scabrisetus* BONG in BONG et C.A. MEY., Verz. Saiss. Nor. Pflanz.: 26, tab. 5 (1841). Fructus exhibitus longe rostratus. Monotypical Middle Asiatic section

**Sect. *Aureophora* KAMELIN, Opred. Rast. Sred. Azii 6: 212 (1981).**

Type: *A. dianthus* BUNGE, Astrag. Fedtsch. 26/2:283 (1880).  
*Flores lumine flavis fructus magnificus profunde sulcatus*



Fig. 2: *A. centralis* E.SHELD., living plant from Tamdy mountains.



Fig. 3: *A. kuldzhuktauense*, living plant from Kuldzhuktau mountains.

**Sect. *Paracraccina* KAMELIN, Opred. Rast. Sred. Azii 6: 262 (1981).**

Type : *A. sogdianus* BUNGE, Astrag. Fedtsch. 26/2: 268 (1880). Stipulae liberum, foliola 7-15-juga, vexillum apice sponsum, alae apice sinuatae.

**Sect. *Leptopi* KAMELIN, Opred. Rast. Sred. Azii 6: 274 (1981).**

Type : *A. michaelis* BORISS. in Fl. URSS. 12:703 (1946) = *A. leptopus* POPOV in Byull. Sredne-Aziatsk. Gosud. Univ. xiv: 142 (1926), non BENTH. ex A. GRAY, Smithsonian Contr. Knowl. 5(6): 43 (1853). Et caudex herba, foliola para, 6-13-juga, flores rosea. Monotypic Western Tien-Shanian section.

**Sect. *Reticulata* KAMELIN, Opred. Rast. Sred. Azii 6: 101 (1981).**

Type : *A. reticulatus* M. BIEB. Fl. Taur.- caucas. 3: 491 (1819). Fructus reticulatae. Monotypic Eastern Mediterranean section.

**Sect. *Pseudohippocrepis* KAMELIN, Opred. Rast. Sred. Azii 6: 105 (1981).**

Type : *A. corrugatus* BERTOL., Rar. Lig. [Ital.] Pl. 3: 33. (1810). Fructus rugosae coriaceum.

**Sect. *Falcigera* KAMELIN, Opred. Rast. Sred. Azii 6: 212 (1981).**

Type : *A. falcigerus* POPOV, Byull. Sredne-Aziatsk. Gosud. Univ. xiv: 143 (1926). Planta suffruticulosa, fructus angustus curvus.

**Sect. *Spryginiana* (VASSILCZ.) F.O. KHASS. et ESANKULOV comb. nov.**

Basionym : Series. *Spryginiani* VASSILCZ. Fl. URSS 12: 665 (1945). Planta suffruticulosa, ovarium et fructus glabris. R. KAMELIN (1981) incorrectly published also subsect. *Spryginiana*.

**Sect. *Laxiflora* (KAMELIN) F.O. KHASS. et ESANKULOV comb. nov.**

Basionym : Subsect. *Laxiflori* KAMELIN, Opred. Rast. Sred. Azii 6: 202 (1981) nec KIRCHHOFF, Mitt. Bot. Staats-samml. München 13: 205 (1977). Planta suffruticulosa, ovarium et fructus glabris.

The senior author discussed privately with R. KAMELIN validation of 2 subsections (*Penduliflori* and *Macrotropidia*) and it

was decided to close both of them, because of their inefficiency. During our typification researches in Komorov's Institute (St.-Petersburg) in 2015 we found a type specimen of *A. kisylkumi* BORISS. (Fig. 1). Two specimens were marked out by A. BORISSOVA as a type, but only 1 sheet had original label (KHIVA 1873, between Karar-ata and Adam, Korolkow, Krause [in Russian]). Second label showed another name of locality (Hola-ata, mountains near fortress of Saint Georgy April, 28, 1873 [in Russian]. The third label was written by one more specialist in Astragalus A. BASILEVSKAJA. She wrote that indication on the first label Khiva is not true, because Hal-ata is located near Bukhara and collectors reached Khiva later on. According to names mentioned on the first label, *A. kisylkumi* was collected in mountains Tomdy near modern town Zarafshon. This name was suggested by A.G. BORISSOVA (1945) instead of *A. microcystis* BUNGE, Astrag. Fedtsch. 26, 2: 306 (1880) nec A. GRAY, Proc. Amer. Acad. Arts vi: 220 (1864). BORISSOVA (1945) mentioned that the type specimen (Khiva khanate) is stored in Paris, but under this name there is another specimen (*Astragalus asper* P03043340). She also mentioned in the description (BORISSOVA 1945) that the flowers are violet. During collecting mission in 2015 on the top of Tamdy mountains we collected the plants (Fig. 2) with rose flowers and binate leaves. The plants we collected early eastern Tamdy in Kuldzhuktau mountains had another diagnostic characters (yellow flowers and 3-4-lobed leaves). Therefore, the best solution could be to select a separate species (Fig. 3) occurring in eastern mountains of Kysylkum (Kuldzhuktau).

***Astragalus kuldzhuktauense* F.O. KHASS., SHOMURADOV & ESANKULOV sp. nov. (section *Laguropsis* BUNGE).**

Perennial plant 10-15 cm high. Stems white haired. Stipules 3-4 mm long, covered by white hairs. Leaves 3-5 cm long, 1-2-jugated. Leaflets 5-15 mm long, lanceolate, covered by pressed white hairs. Flower stalks several, 10-15 cm high with white hairs. Inflorescence dense, 1-3 cm in diam. Bracts 2-3 mm long, with white hairs. Calyx tubular, violet in the upper part, then inflated, 8-14 mm long, with 3-4 mm long hairy teeth. Corolla yellow. Vexillum 10-12 mm long, not sinuated. Alae 8-10 mm long, not sinuated. Carina 6-8 mm long. Legumes 3-4 mm long, hairy, unilocular.

Type : Uzbekistan. South-Western Kysylkum, 3 km north from Borewell Aja-Gujumdy, Kuldzhuktau mnts., southern slope, n. 8, 12 May 1974, A. Li [in Russian] (TASH, isotypus TASH).

Ab *A. centralis* KOROVIN foliis 3-5-jugi (nec 1-2), floribus flavis (nec roseis) differt.

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## REFERENCES

BORISSOVA A.G. (1945): Section Proselis — In V. KOMOROV (ed.): Flora URSS **12**: 860.

BUNGE A. (1868): Generis species gerantologiae. — Memories L'Academie Imperiale des Sciences de St.-Petersburg VIII serie, t.11, n.16, 317 p.

KAMELIN R.V. (1974): Zametki po rodu *Astragalus* vo flore Pamiroalaja. — Bot. Zhurn. (Moscow & Leningrad) **59** (12): 1754 .

KAMELIN R.V., KOVALEVSKAYA S.S.& M.M.NABIEV (1981): Rod *Astragalus* — in A. VVEDENSKY (ed.) *Conspectus Floraes Asiae Mediae*. — Tashkent, FAN, Vol. **6**: 240.

KHASSANOV F.O. (2015): *Conspectus Floraes Asiae Mediae*. Tashkent, — FAN, Vol. **11**: 457 p.

PODLECH D. (2013): revision of Genus *Astragalus* L. (Leguminosae) of Old World — *Taxon* **3**: 1810.

POPOV M.G. (1937): Section *Microcystis* BUNGE. — In: Flora Tadzhikistana (ed. GONTSCHAROV N.F.), v.5, p. 312.